

# Hematologic Cancer Initiatives

FROM THE DIVISION OF CANCER PREVENTION AND CONTROL

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The Centers for Disease Control and Prevention (CDC) funds efforts to raise awareness about hematologic cancers (leukemia, lymphoma, and myeloma), including symptoms and treatments, to improve survivors' quality of life. These efforts offer health care providers the latest information about how to recognize the signs and symptoms of hematologic cancers and how to treat these diseases. They also connect the public, people living with hematologic cancers, and their friends and families with resources for understanding the diseases better; asking the right questions about diagnosis, treatment, and survivorship; receiving optimal treatment; and finding community support networks.

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## The Burden of Hematologic Cancers

According to the *United States Cancer Statistics: 2005 Incidence and Mortality* report, more than 100,000 cases of hematologic cancers were diagnosed in this country in 2005, and more than 53,000 people died from these cancers that same year.<sup>\*1</sup> Hematologic cancers include leukemia(s), lymphoma(s), and myeloma, all of which involve the uncontrolled growth of cells that have similar functions and origins.

**Leukemia** is a cancer of the bone marrow and blood. The two primary types of leukemia are lymphocytic leukemia, which involves an increase of white blood cells called lymphocytes; and myelogenous leukemia (also known as myeloid or myelocytic leukemia), which involves an increase in white blood cells called granulocytes. Leukemia can be acute or chronic. Acute forms of leukemia progress rapidly, but chronic forms progress slowly.

In 2005, 33,616 cases of leukemia were diagnosed in the United States, including 19,059 in males and 14,557 in females. That same year, 21,716 people died from leukemia, including 12,273 males and 9,443 females.<sup>\*1</sup>

Scientists do not know why, but Caucasians are more likely than African Americans to develop acute leukemia.

**Lymphoma** is a general term for a group of cancers that originate in the lymph system. The two primary types of lymphoma are Hodgkin lymphoma, which spreads in an orderly manner from one group of lymph nodes to another; and non-Hodgkin lymphoma, which spreads through the lymphatic system in a non-orderly manner.

In 2005, 63,303 cases of lymphoma were diagnosed in the United States, including 34,001 in males and 29,302 in females. That same year, 22,145 people died from lymphoma, including 11,815 males and 10,330 females.<sup>\*1</sup>

The main causes of lymphoma are unknown. However, research has shown that people infected with the human immunodeficiency virus (HIV) are at much higher risk of developing lymphoma. Other viral agents, such as human T-cell lymphotropic virus and Epstein Barr virus, also have been linked with certain types of lymphoma.

**Myeloma** is a cancer of the plasma cells. In myeloma, the cells overgrow, forming a mass or tumor that is located in the bone marrow. Bone marrow is the spongy tissue found under the surface of the bone, where red cells, white blood cells, and platelets are made.

In 2005, 15,725 cases of myeloma were diagnosed in the United States, including 8,552 in males and 7,173 in females. That same year, 10,758 people died from myeloma, including 5,703 males and 5,055 females.<sup>\*1</sup>

Age is the most significant risk factor for developing myeloma. People under the age of 45 years rarely develop the disease, while those aged 67 years or older are at greatest risk of developing myeloma. Men are more likely than women to develop myeloma, and myeloma is about twice as common among African Americans as among Caucasians.

\* Incidence counts cover approximately 96% of the U.S. population. Death counts cover 100% of the U.S. population. Use caution in comparing incidence and death counts.

## Risk Factors

### Leukemia

Scientists do not fully understand all the causes of leukemia, but research has uncovered many associations. For example, chronic exposure to benzene in the workplace and exposure to large doses of radiation have been shown to cause leukemia in some cases.<sup>2</sup> Additionally, cancer-causing chemicals in tobacco may be associated with myeloid leukemia in adults.<sup>3</sup> Family history has also been associated with increased risk of leukemia.<sup>4</sup> Caucasians are more likely than African Americans to develop acute leukemia,<sup>1</sup> but scientists do not know why.

### Lymphoma

The main causes of lymphoma are unknown. However, research has shown that people infected with the human immunodeficiency virus (HIV) are at much higher risk of developing lymphoma.<sup>5</sup> Other viral agents, such as human T-cell lymphotropic virus and Epstein Barr virus, also have been linked with certain types of lymphoma.<sup>5</sup> Finally, some studies suggest that specific ingredients in herbicides and pesticides may be associated with lymphoma occurrence, but scientists have not defined the amount of such exposures required to increase the risk of developing lymphoma.<sup>5</sup>

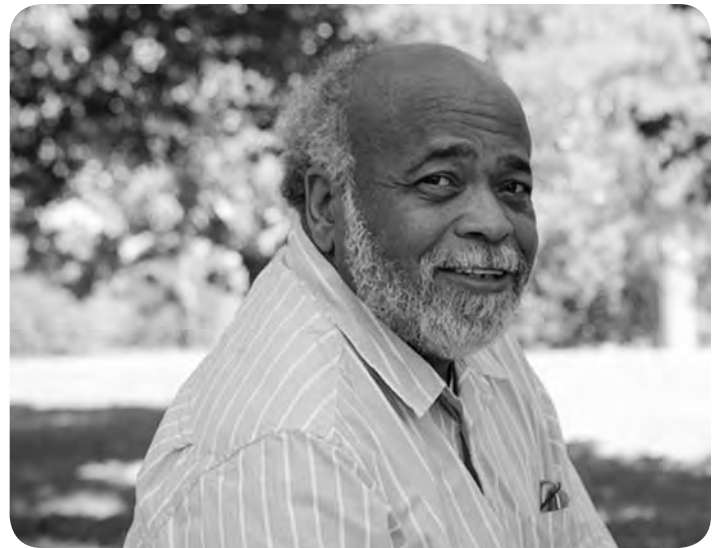
### Myeloma

Age is the most significant risk factor for developing myeloma.<sup>6</sup> People under the age of 45 years rarely develop the disease, while those aged 67 years or older are at greatest risk of developing myeloma.<sup>7</sup> Men are more likely than women to develop myeloma, and myeloma is about twice as common among African Americans as among Caucasians.<sup>1</sup> In rare cases, exposure to radiation may be a risk factor for developing myeloma.<sup>6</sup> Finally, some studies have suggested that workers in petroleum-related industries may be at a higher risk for developing myeloma.<sup>5</sup>

## Accomplishments

CDC funds efforts to improve the awareness, diagnosis, understanding, and treatment of hematologic cancers.

- **Community Media Productions** created *A Lion in the House* ([www.lioninthehouse.com](http://www.lioninthehouse.com)), an Emmy® Award-winning Public Broadcasting Service television documentary on childhood cancer, which follows five children of diverse socioeconomic backgrounds. They also produced a website for survivors ([www.survivoralert.org](http://www.survivoralert.org)).
- **Institute for Continuing Healthcare Education** conducted and evaluated professional education events for primary healthcare professionals, and created a website to deliver education materials to primary healthcare professionals and share information from collaborators ([www.iche.edu](http://www.iche.edu)).



- **International Myeloma Foundation** expanded outreach to African Americans, the elderly, the underserved, the uninsured, and the underinsured to educate them about myeloma (<http://myeloma.org>).
- **Research Triangle Institute** partnered with the American Cancer Society to develop a comprehensive catalog and report summarizing 293 hematologic cancer resources currently available ([www.rti.org](http://www.rti.org)).
- **University of Colorado at Denver and Health Sciences Center** designed a website about hematologic cancers. The site offers professional training courses and continuing education credits to clinicians on diagnosis and treatment of hematologic cancers and provides clinical consultation services online. The University of Colorado provides education to primary care providers as well as hematologists and oncologists at [www.hemoncedu.org](http://www.hemoncedu.org).

## Ongoing Work\*

CDC continues to fund public and private, nonprofit and for-profit national organizations to increase awareness of and education about hematologic cancers. These cooperative agreements are designed to provide information to patients, their family members, friends, caregivers, and health care providers.

- **Leukemia and Lymphoma Society** is working to address disparities in patient access to clinical trials by providing training to oncology nurses, addressing cultural gaps for Hispanic and other underserved patients by removing barriers to cancer care, and providing a proactive navigation system to patients with the greatest need for immediate and ongoing support ([www.leukemia-lymphoma.org/hm\\_lls](http://www.leukemia-lymphoma.org/hm_lls)).
- **Lymphoma Research Foundation (LRF)** continues to increase awareness of and access to lymphoma-

specific education resources and patient support services by broadening its outreach to underserved minority/immigrant populations and lower literacy English-speaking patients. LRF is developing, testing, and disseminating new educational resources for underserved lymphoma patients, family members, friends, and caregivers for whom no materials existed ([www.lymphoma.org](http://www.lymphoma.org)).

- **Multiple Myeloma Research Foundation (MMRF)** continues its efforts to reach underserved populations by increasing awareness of multiple myeloma (MM) treatment options and clinical trials among health care providers, improving reach and effectiveness of MM patient education strategies, and increasing awareness of MMRF patient resources among patients and providers ([www.multiplemyeloma.org](http://www.multiplemyeloma.org)).
- **National Marrow Donor Program** is providing new education and resources to the transplant survivorship community through partnerships. It also is expanding survivorship programs and resources to focus on medically underserved communities and increasing access to existing programs and resources for hematologic cancer survivors ([www.marrow.org](http://www.marrow.org)).
- **Patient Advocate Foundation** is working with disease-specific organizations to produce new educational materials and will continue to provide outreach opportunities to patients and health care providers ([www.patientadvocate.org](http://www.patientadvocate.org)).

\* Indicates programs previously funded under Program Announcement 04519.

## Newly Funded Projects

- **Education Network to Advance Cancer Clinical Trials, Inc. (ENACCT)** is conducting a pilot project aimed at educating newly diagnosed/newly recurred patients about treatment options, including clinical trial treatment options. In addition, ENACCT aims to increase awareness of support services, enhance cultural competency skills of clinical trial investigators and their teams, and disseminate information about clinical trial services ([www.enacct.org](http://www.enacct.org)).
- **Oregon Health and Science University Cancer Institute** is providing educational materials for adolescent and young adult hematologic cancer survivors by revising currently available materials, developing treatment summaries, and using electronic medical records to disseminate educational materials and information ([www.ohsucancer.com](http://www.ohsucancer.com)).
- **SuperSibs! Sibling Survivors Education and Information Dissemination Program** is providing information about hematologic cancers to cancer survivors and their family members, friends, and caregivers. SuperSibs! supports, honors, and recognizes



siblings of children diagnosed with cancer by disseminating tailor-made information and education packages that encourage open communication, catharsis, and support among parents, friends, teachers, and children ([www.supersibs.org](http://www.supersibs.org)).

- **National Coalition for Cancer Survivorship (NCCS)** is working to expand the award-winning Cancer Survival Toolbox (CST) program—a program that provides information and education, including self-advocacy skills, to people diagnosed with multiple myeloma, adult leukemia, and non-Hodgkin lymphoma. Also, NCCS is addressing the needs of key underserved audiences by refining the CST and its distribution channels to African American, Latino, and American Indian populations ([www.canceradvocacy.org/toolbox/](http://www.canceradvocacy.org/toolbox/)).

## Future Directions

The hematologic grantees have developed a wealth of materials for educating the public, patients, and providers. Future directions include facilitating collaborations between National Comprehensive Cancer Control Program grantees to expand awareness of and use of these materials. For more information on CDC's National Comprehensive Cancer Control Program, visit [www.cdc.gov/cancer/ncccp/](http://www.cdc.gov/cancer/ncccp/).

## References

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